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Sterilisation: The Aberdeen experience, and some broader implications

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In her paper, Sue Teper outlines the various methods of contraception or fertility control and their relationship to sterilisation. She also considers a particular group of women in Aberdeen as a mini case-study. From these two aspects of sterilization develops a third – that of broader medical and economic issues. Sterilisation usually concerns patients who are free from illness, therefore the attitudes of medical personnel are much more relevant to whether or not the operation is performed on request purely as a means of fertility control, rather than for medical reasons where the patient may be at risk were a pregnancy to occur. Ms Teper calls for medical staff in this instance to clarify their own attitudes in decisions which involve surgical skills and healthy patients.

Introduction

Over the past 10 to 20 years the attitudes to reproduction of British women and their actual conception patterns have altered rapidly. The Government has responded by introducing legislation in relation to abortion and other fertility-related topics, and the role of the National Health Service in the field of reproduction and fertility control has been enlarged. The response of obstetricians and gynaecologists has – except for a minority – been swift and humane. This paper deals with one aspect of fertility regulation – female sterilisation – in which the available surgical techniques and the extensiveness of clinical involvement have changed dramatically in the past decade.

Three particular aspects are considered:

a) Sterilisation and its relationship to other means of fertility control.
b) The sterilisation experience of a particular group of women in Aberdeen – a mini case-study, and
c) Some of the broader medical and economic issues arising from the growing practice of sterilisation.

Sterilisation and its relationship to other means of fertility control

In the United States and in certain areas of Britain voluntary contraceptive sterilisation is occurring on a relatively large and increasing scale.[1] In Aberdeen in 1974 (the last year for which data are available) more than 700 women underwent surgical procedures for sterilisation; in addition about 200 vasectomies were performed.[2] If allowance is made for vasectomies occurring within the private sector of medicine, then a figure of around 1000 is a likely estimate of the total number of contraceptive sterilisations performed in Aberdeen in 1974. The 1971 Census puts the total number of married women in the City and aged 16 to 44 at between 22 and 23 thousand. This number of sterilisations on that size of population suggests that a real demand exists amongst couples for total freedom from the risk of further child-bearing. The growth of non-therapeutic sterilisation is inexplicable without reference to the substantial changes which have occurred in recent years in the patterns of social and sexual behaviour; and also to the altered nature and availability of fertility control techniques. Furthermore, these two sets of factors are not independent of each other.[3]

The character of the changes in sexual and reproductive behaviour in our society are well-known. To summarise, we can say that a 'small' family norm has become well established, that radical changes have occurred in the pattern of conceptions outside marriage, and that the age incidence of conceptions – of both legitimate and illegitimate pregnancies – has shifted to the younger groups. Abortion is now legal subject to broad criteria and a large proportion of the procedures are performed under the auspices of the National Health Service. Finally, in 1974, contraception was made available on a no-fee-to-patient basis.

The rapid developments in contraceptive technology are now matters of history as they no longer excite comment as they did during their innovative phase. Oral contraception is widely used by all social classes, and to a lesser extent the various intra-uterine devices have been accepted. However, there are some implications of modern contraception which merit explicit consideration. Specifically there are three points to be made:—

a) First that the pill has not in itself significantly reduced family size. For example, marriages contracted in 1935 produced on average an ultimate family size of just over 2 children per woman – 2.02 children to be exact.[4] These women had virtually completed and limited their family building *before* the point in time when the pill became available. What oral contraception *has* done

is to make the process of family planning simpler, more certain (especially in terms of intervals between pregnancies) and it now need not involve any form of personal restraint.

b) Secondly, and this is of far more importance, there is the fact that individuals and couples now expect a very high level of contraceptive efficiency. Family size can be planned more exactly, as can – within the bounds of mother-nature – the timing of births. This in turn affects plans which couples make about the broader aspects of their economic, social and family lives. When couples make such plans an additional and unplanned pregnancy may well be unwelcome and even unacceptable. Hence we can explain *part* of the resort to abortion. National data for 1971 indicate that nearly half the total number of abortions are performed on currently married women; and a large proportion of these women are having a third or higher order pregnancy terminated.[5] Thus the small family norm, good – though not perfect – contraceptive technology, plus possibly the perceived health risks of the available long-term contraceptive methods logically lead to a demand for the more certain option – that of protection through surgery.

c) Thirdly, the use of oral contraception and of intra-uterine devices has moved the responsibility for family planning from the male to the female. With the exception of diaphragms and related devices previous popular methods have depended on the male. This change has doubtless affected sexual behaviour inside and more particularly outside marriage. The shift away from the condom and other male methods may well account for some of the increase in pregnancies amongst young unmarried women who may be unwilling or unable to cope with contraception which can in any case only be obtained from a qualified doctor. Furthermore, if we are as a society proceeding across a contraceptive spectrum from 'mechanical' means (ie diaphragms, condoms etc), through 'modern' methods (steroids and IUDs) to 'surgical' methods (sterilisation),[6] then the balance between male and female methods may change again – and could produce yet further alterations in the patterns of personal and sexual behaviour.

Let us now consider specifically the Aberdeen experience; the behaviour of a population which for some decades now has had access to an extensive and integrated system of maternity, child-care, and fertility control services.[7]

The fertility experience of a particular group of women in Aberdeen City

In any hospital team individual obstetricians and gynaecologists make specific decisions on a day-to-day basis about individual women. In relation to fertility and fertility control, the cumulative effect of these decisions can and does affect the pattern of reproduction in that population as a whole; if sterilisation is involved then this may even affect the basic *ability* of that population to reproduce. Generally this latter effect is particularly difficult to estimate, since the prerequisites are a detailed data bank, a clearly defined catchment area, and underlying population (census type) data. To a greater or lesser extent all these conditions are met in Aberdeen – and this is the reason for using it as an illustration.

The number of women sterilised each year in Aberdeen has shown a steady upward trend for many years; the figure for 1961 was 201, for 1971 529[8] and for 1974 722[9] (provisional figure). The characteristics of the women have also changed over time. Women are now presenting at younger ages and they come from all social classes.[10] The parity distribution has changed radically – and over a very short period of time. The table below (Table 1) for 1963 and 1971 illustrates this latter point. These data relate only to a subset of all the women sterilised in each of the two calendar years; the women included were still in a first marriage, were residents of Aberdeen City and were not pregnant at the time of sterilisation. The table shows that the frequency of very large families (5+) decreased substantially – from over 40 per cent of women sterilised in 1963 to just 6 per cent amongst the 1971 group. Correspondingly a concentration on a smaller family size has emerged – 67 per cent had 2 or 3 children in 1971 compared with 29 per cent in 1963. Preliminary examination of the 1974 data indicates an even higher proportion of women having 2 or 3 – and particularly only 2 – children at the time of sterilisation.[11]

TABLE I Family size distribution (%) of women sterilised in Aberdeen in 1963 and 1971 (women in a first marriage and City residents only): post-partum plus interval sterilisations

Number of children alive at sterilisation	*Year of sterilisation*	
	1963	1971
0 or 1	0.5	2.3
2	7.9	24.2
3	21.2	42.6
4	29.1	24.5
5+	41.3	6.0
All family sizes	100.0	100.0
(Number)	(189)	(385)

An alternative approach to sterilisation is to consider the population of women in a clearly defined group who will ultimately undergo a surgical sterilisation before normal menopausal age,[12] the proportion 'ever sterilised'. Putting together the data available for Aberdeen City and making certain assumptions it is possible to produce

such an estimate. To perform this exercise we have taken as the basic group of women those who were enumerated in the 1971 Census, defined as resident in Aberdeen City, married and aged between 16 and 44 years. The number of such women was 22,590.[13] These women form a cross-section of the married population; they represent various stages of the family-building cycle – from nulliparous 19-year-olds to women in their early 40s with teenage children. We shall now proceed to treat this set of women as a closed 'cohort' – that is, we shall calculate the number of sterilisations that have been performed in the past and estimate the number likely to be performed in the future on these women. No 'new entrants' to the cohort are considered – women reaching the age of 16 and marrying after Census date will be ignored.

Examination of hospital records and the 1971 Census show that approximately 4000 women in the City who were married and aged between 16 and 44 at Census date had been sterilised by the end of 1971; an estimated 500 husbands had undergone vasectomy.[14] In the period 1972–74 a further 2000[15] women of the same 'cohort' were sterilised, plus an additional 900[16] vasectomies.

Let us now make the following hypothetical but conservative assumptions:—

a) That the total volume of sterilisations (male and female) remains at the 1974 level without *any* continuation of the steady upward trend of the past 15–20 years.

b) That all the sterilisations performed in the 5 years 1975–1979 are performed on *this* 'cohort' of women (a few will obviously be performed on women who have married since 1971): and that all sterilisations performed after 1979 are not performed on the selected 'cohort' (this is an underestimate – for example, a married 18 year old in 1971 may well not be sterilised before 1980).

On this basis a further 5000 sterilisations will be performed on the cohort. These figures are summarised below in Table II.

TABLE II Estimates of the ultimate levels of sterilisation amongst married couples where the wife was aged 16–44, and enumerated in Aberdeen City in the 1971 Census

Number of women		*22,590*	
		Number of sterilisations	
		Female	*Male*
Up to end of 1971		4000	500
1972–1974		2000	900
1975–1979		5000	
		Number	*Percentage*
Total – Both sexes		12 400	55
Approximate breakdown	Female	10 500	46
	Male	1900	8

Whether sterilisations continue to be performed at the 1974 level will depend on demand, on logistic issues related to Health Service resources and also on any shift from female methods to vasectomy. In addition the recent introduction of payment for performing these operations could affect the situation. But if demand and resource availability continue at current levels then it is possible that almost half the women in the defined cohort will be surgically sterilised before their natural menopause. If vasectomy is included then the proportion rises. A further proportion of the cohort are effectively sterilised through other procedures – other forms of surgery, radiotherapy, or chemotherapy – where the primary indication for treatment is undoubtedly therapeutic.[17]

Although these estimates are obviously subject to errors from many sources, nonetheless a resort of this order of magnitude to sterilisation – a frequently irreversible procedure – represents a new and radical development in the field of conception control. Similar trends are occurring in other parts of Britain although practice is by no means geographically uniform. This may therefore be an appropriate point in time to examine the implications which the widespread adoption of sterilisation has for the individual, for the clinician, and for society.

Some broader issues[18]

THE STATUS OF BIRTH CONTROL METHODS AND THE CONCEPT OF 'MAINTENANCE' CONCEPTION CONTROL

Earlier in this paper we indicated that the resort to sterilisation can be perceived as a logical step after the widespread access to and use of effective contraceptive methods. Furthermore, such contraception may have a real impact on personal attitudes towards the timing of conception and the number of births. A high level of sterilisation may therefore in itself be a reflection on – amongst other factors – the nature and status of current contraceptive technology. From this perspective the drawbacks, hazards, and possible method-failure rates of the various forms of contraception are of relevance.

One of the most widely used methods for avoiding conception in Britain is oral contraception.[19] The other less used but sophisticated technique is the intra-uterine device. With both methods use-effectiveness can be high;[20] and with both methods the means by which conception is avoided are completely divorced from the actual act of intercourse. Oral contraception generally involves taking a pill on a daily basis for about 75 per cent of each menstrual cycle. The ingestion of steroids shows a statistically significant association with thrombophlebitis, pulmonary embolism, and cerebral thrombosis and embolism.[21] Other possible adverse associations – for example the incidence of neuro-ocular lesions – may exist; and possible long-term (generational)

effects remain the subject of clinical investigation. The absolute magnitude of the risks is, however, small. Side-effects from hormonal compounds include nausea, migraine, gastrointestinal symptoms, weight change, amenorrhoea, etc. Intra-uterine devices have known method-failure rates,[22] and pregnancy occurring with a device *in situ* can offer complications.[23] The devices carry the risk of uterine perforation and of pelvic inflammatory disease. Another possibility – uncertain as yet – is an increased incidence of ectopic pregnancy. Frequent side-effects are pain and excessive blood loss.

With both these forms of birth control women experience side-effects which though harmless are unpleasant, and which may make the technique unacceptable. However, in this situation the high level of protection against conception and the high degree of convenience must be weighed against the higher failure rates and lower convenience of the less sophisticated options. When sterilisation is brought in as an alternative the considerations are slightly different. Before we examine this in more detail let us outline two basic and consecutive contexts for contraception – timing control and number control.

As our illustration let us take a hypothetical woman who represents fairly closely the norm in terms of current reproductive behaviour. She will enter marriage in her late teens or early twenties, have two – or three – live births, and reach her desired family size in her middle twenties. Contraception may be necessary to delay the first conception, and to adjust the interval between the first birth and second conception – that is for timing purposes. Allowing appropriate intervals for conception, pregnancy, and post-partum period, contraception for timing control will be necessary for about 2½ years – or slightly longer if the first birth is pre-maritally conceived. Thus for a couple who follow this pattern there remains a period of nearly a quarter of a century in which conception is to be avoided. And it is this period which we can call the time of 'maintenance' conception control. It is through examining the options which are available in this period that we can demonstrate that the resort to sterilisation is by no means surprising.

In the 'maintenance' period during which no further children are desired a variety of options exist. The traditional one in an historical context is that of abortion. However, except under controlled conditions, abortion may carry the risk of death or of morbidity. Even in the clinical situation the risks are not zero. For many women the prospect of repeat abortions is far from ideal. And although abortion is legal in Britain it is legal only when certain medical or social conditions obtain,[24] so that for each conception which a woman wishes to have terminated a referral must be sought and an abortion granted. On each occasion there is the risk of the request being denied. Alternatively protection against pregnancy can be achieved through conventional birth control methods: coitus interruptus, abstinence, the condom, or a variety of caps and diaphragms. All these methods have failure rates – although it appears that these rates may be relatively low when motivation is high.[25] Continuous motivation over a twenty-five year period even allowing for decreasing fecundity would nevertheless seem to raise problems. With each of these techniques consistent contraceptive activity is needed. The third option is the use of the pill or the loop. Over a long period of time the medical risks, the daily pill taking process (in the case of oral contraception) and the occurrence of side-effects may be undesirable.

Surgical sterilisation removes many of the problems outlined so far. If hysterectomy is the operation of choice then failure (subsequent pregnancy) is ruled out – as is any future uterine pathology. Tubal methods sometimes carry the risk of failure through spontaneous reanastomosis and and subsequent pregnancy. Depending on the exact technique used reversal may or may not be feasible and in any case joining the fallopian tubes does not guarantee pregnancy. Tubal methods may leave the risk of uterine pathology unchanged. Various follow-up of sterilisation have looked at the clinical and psychological sequelae of the procedure.[26] They have also investigated 'satisfaction' with the operation. Few appear to regret it, and relatively few come forward to ask for reversal.[27] But what researchers have not so far asked is whether sterilisation would have been sought had there been an acceptable alternative – a more adequate form of (reversible) contraception. If this can be established then the priority must be for better contraceptive technology, or (and perhaps this is more likely in the light of the present pharmaceutical climate) for simpler reversible techniques of surgical contraception ie 'temporary' sterilisation.

COSTS

In a society where the 'small' family norm is established and where it is attained through the use of modern birth control methods substantial demands will be made on health resources. Ante-natal care, delivery, and post-partum supervision in themselves use all levels of hospital personnel and space. Oral contraception can only be obtained from medical practitioners, who also fit IUDs. Hospital beds, and surgical and nursing teams are needed for terminations of pregnancy – whatever the reasons for termination. In a period of falling fertility the absolute level of demand in certain sectors may fall. Such savings are to a large extent off-set by developments in obstetric and gynaecological technology – for example the use of amniocentesis and diagnostic laparoscopy.

Sterilisation removes many of the direct costs involved in avoiding additional pregnancies after

the desired family size has been reached. In the absence of sterilisation long term contraceptive 'maintenance' costs must be considered. These are the costs of abortion, contraception, and abortion (or delivery) after failed contraception. In terms of the economists' utility models sterilisation can be an optimum choice. Certain facts may modify this standpoint. Occasionally sterilisation will fail and the woman will become pregnant. Additional costs are then incurred for the outcome of the unwanted pregnancy and possibly for re-sterilisation. Quite separately reversal of the procedure may be sought and when the original technique makes this possible the surgeon may attempt to do this. Finally, even after sterilisation, most women are still at risk of gynaecological pathology.

Costs cannot, however, be assessed purely in terms of economics. In some circumstances there may be a heavy personal cost attached to sterilisation. First of all sterilisation performed on young women means that there is a long period during which personal circumstances can change and this may lead to requests for reversal. Women who are sterilised in their middle twenties have usually started child-bearing and have married at an early age. Age at marriage, divorce and the incidence of pre-nuptial conception show strong negative correlations. The younger the age at marriage the higher the probability that the wife was pregnant at marriage, and the younger the age at marriage the higher the probability of divorce; remarriage rates continue to be high. Some couples may choose a 'long term' procedure in a 'short term' situation. Identification of such possible couples needs a sensitive approach, and the relative convenience and simplicity of surgical sterilisation must be measured against such considerations.

DECISION MAKING: DOCTORS AND PATIENTS

Even a superficial look at sterilisation in Britain makes it obvious that great variation exists in medical practice. One source puts the number of female sterilisations performed in 1972 in England and Wales at 25 600.[27] This means that approximately one woman in every 180 married women in the reproductive age range underwent sterilisation in that year. The corresponding figure for Aberdeen City was about one in 35, and for one other area in the North East of Scotland the figure was probably about the same. Differences in clinical judgment are of course not unknown in the medical profession, but their existence appears to be emphasised when the social element forms a significant component in the clinical decision. This was particularly evident in statements made by members of the medical profession in the period of debate prior to the 1967 Abortion Act.[29] In a recent issue of the *Journal of Medical Ethics* two papers indicated that diversity of opinion exists in relation to artificial insemination by donor and to sterilisation itself.

In the first paper[30] Kerr and Rogers review the technical and social problems arising in cases of donor insemination. The medical criteria are stated and are followed by a variety of more complex non-medical criteria. In particular the authors state that 'The couple must have a stable mature relationship . . . must be seen to communicate freely and honestly with each other. . . . The man should have come to terms with the fact of his infertility etc'. To quantify such situations is virtually impossible; the decision is dependent on subjective evaluation of the circumstances.

The second paper reported a case conference on abortion and sterilisation.[31] The case history of a 19-year-old West Indian girl presenting for termination of an unwanted pregnancy was described; sterilisation was also performed. Two gynaecologists commented on the decision. Both disagreed with the decision of the supervising practitioner, but the reasons for the disagreement illustrate very neatly the way in which doctors may use their personal moral standpoint to reinforce clinical judgment. One agreed with the decision to terminate, regarded the decision to sterilise as drastic, and went on to discuss the complex (and admittedly unusual) social circumstances of the patient. He then stated 'The prospect that a West Indian with this complicated social and medical background would make a suitable and successful marriage in Britain today seem to be rather poor. As a single woman in poor health she may have difficulty in earning a living. She might be better in Jamaica where the climate is better'. The other regarded the decision to sterilise as an error and argued that the social factor in the decision to terminate was given excessive emphasis. He then stated 'I should not consider promiscuity or no marriage as an indication for abortion. Nor would I ever advise sterilisation simply to arrange sterile coitus. I might by such advice lead the unfortunate girl into prostitution'.

At one end of the spectrum there are gynaecologists who will only perform a sterilisation when the decision to do so is based on purely medical indications. At the other end there are practitioners who will essentially (and presumably with informed consent) perform the procedure 'upon request' – thus playing essentially a technician's role. Between these positions there are many gynaecologists whose behaviour suggests that not only are they experts on the reproductive organs of women, but also in all sorts of problems which women may experience with respect to the broader issues relating to reproduction. However to consider the various idiosyncracies of doctors – who are all individuals themselves – is probably not constructive. What is a useful exercise is to consider *what* patients, who find themselves possible candidates for sterilisation (or indeed for abortion etc), *need* from the medical profession. In these areas the individual's need

predominates – but can only be met through the *skills* of the medical profession.

The position of sterilisation differs from that of the other methods of fertility control partly because the boundary between the therapeutic and the elective elements is sometimes unclear and partly because it is a surgical procedure. The consensus of opinion appears to be that adequate counselling should be available for all operative procedures. For elective surgery counselling involves an extra dimension. In this context patients need support from the medical profession in order to make what is hopefully a correct although invariably an entirely *personal* decision.

Sterilisation requires one factor in addition to individual acceptance – it requires the acceptance of the medical personnel involved. Changes are occurring on both sides of this equation: more gynaecologists are prepared to perform sterilisation on indications which are not 'medical', and the procedure *is* acceptable to many more young couples. This trend requires more than the simple reorganisation of hospital beds and theatre lists. It calls, first, for more time for individual consultations to ensure adequate time for information to be given on all the various methods of fertility control. Obstetricians and gynaecologists continue to adopt a 'disease' model in relation to the management of pregnancy, abortion and sterilisation. More often than not, however, they are dealing with individuals who are free from sickness. The second need, therefore, if the resort to sterilisation continues, is for the medical staff to explore and clarify their own attitudes towards and competence in decisions which involve surgical skills and healthy human beings.

References

[1]For the U.S. see Bumpass, L, 'The Increasing Acceptance of Sterilisation in the U.S.' in Schima, M E *et al* (eds) *Advances in Voluntary Sterilisation* (Excerpta Medica, American Elsevier Publishing Co. Ltd 1974): and *Population Index*, July 1975, **41** No. 3 p. 398. These two sources indicate that contraceptive sterilisation has doubled in the interval 1969–1973 – to around 20 per cent of couples in the reproductive age range. One estimate is available for England and Wales (Bone, M. *Family Planning Services in England and Wales* – London, HMSO, 1973). She puts the figure in 1970 at 4 per cent; however, the unusual nature of the sample involved do not lead us to accept this figure as a reliable estimate of the true proportion sterilised.

[2]Thompson, B, *'Problems of Abortion in Britain: Aberdeen a case-study* (forthcoming).

[3]For a discussion see Teper, S, Social theory and individual behaviour: some issues of research orientation. *Journal of Social Science and Medicine*, **9**, pp. 195–205.

[4]Teper, S, *loc. cit.*

[5]Teper, S, *loc. cit.*

[6]Female sterilisation and vasectomy.

[7]A good summary of attitudes and practice amongst patients and staff is presented in Horobin, G, Experience with abortion: a case study of north-east Scotland (*Cambridge University Press* 1973).

[8]Thompson, B and Aitken-Swan, J, Pregnancy outcome and fertility control in Aberdeen. *British Journal of Preventive and Social Medicine*, **27**, No. 3, August 1973.

[9]Thompson, B, *loc. cit.*

[10]A full analysis of the characteristics of women who have undergone sterilisation in Aberdeen will be presented elsewhere; together with an analysis of, the number of 'reproductive years' saved by the procedure.

[11]Teper, S: Unpublished.

[12]See footnote number 17.

[13]Census 1971 (Scotland) Aberdeen City volume.

[14]Thompson, B and Aitken-Swan, J: *loc. cit.*

[15]Thompson, B: *loc. cit.*

[16]Thompson, B: *loc. cit.*

[17]This includes therapy undertaken both in the Department of Obstetrics and Gynaecology and elsewhere. It is likely to be a small proportion during the ages at which most reproduction occurs.

[18]Although this section deals almost exclusively with female sterilisation, much of its content is also applicable to vasectomy.

[19]Glass, D V, (1968). Contraception in marriage, *Family Planning* **17** (3).

[20]See Ryder, N B 1973. Contraceptive failure in the United States. *Family Planning Perspectives*, **5**, No. 3.

[21]The three principal studies providing this evidence are: The Royal College of General Practitioners: Oral contraception and thromboembolic disease, *Journal of the College of General Practitioners* **13**, 1967; Inman, W H W and Vessey, M P, Investigation of deaths from pulmonary, coronary and cerebral thrombosis and embolism in women of child-bearing age, *British Medical Journal* **2**, 1968; Vessey, M P and Doll, R, Investigation of relation between use of oral contraceptives and thromboembolic disease. A further report, *British Medical Journal* **2**, 1969.

[22]The risk varies between 0.9 and 10.8 pregnancies per 100 IUD users in the first year of use, depending on the type of device. See Sobrero, A J (1971). 'Intrauterine Devices in Clinical Practice'. *Family Planning Perspectives*, **3**. No. 1 January.

[23]Sobrero, A J: *loc. cit.*

[24]Teper, S: *loc. cit.*

[25]For example it has been estimated that the 12 month failure rate for the pill is 4 per cent and for the condom 10 per cent when *prevention* rather than delay is the aim. See Ryder, N B: *loc. cit.*

[26]See Presser, H, (July 1970). 'Voluntary Sterilisation: A World View'. Reports on Population. *Family Planning*, No. 5.

[27]See for example Thompson, B and Baird, D: 'Follow-up of 186 Sterilised Women', *The Lancet* **11**, 5.68. The reader should note that few women coming forward for reversal is not necessarily proof that few wish to change their minds.

[28]'On the State of the Public Health 1972'. (London HMSO 1973).

[29]MacIntyre, S J: (1973) 'The Medical Profession and the 1967 Abortion Act in Britain', *Journal of Social Science and Medicine*, **7**, pp. 121–134.

[30]Kerr, M G and Rogers, C: (1975) 'Donar Insemination' *Journal of Medical Ethics*, **1**, No. 1, pp. 30–33.

[31]Case Conference: Abortion and sterilisation, *Journal of Medical Ethics*, **1**, No. 1, pp. 45–58.